Charles H. Townes Papers

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LC Online Catalog record: http://lccn.loc.gov/mm99084413

Prepared by Melinda K. Friend with the assistance of Tracey R. Barton and Maria Farmer

Collection Summary

Title: Charles H. Townes Papers

Span Dates: 1898-2009 **Bulk Dates:** (bulk 1948-2000)

ID No.: MSS84413

Creator: Townes, Charles H.

Extent: 109,000 items; 408 containers plus 1 classified, 3 oversize, and digital files; 163.6 linear feet

Language: Collection material in English

Location: Manuscript Division, Library of Congress, Washington, D.C.

Summary: Physicist, astrophysicist, and educator. Correspondence, computation notebooks, technical memoranda and notes, patents, teaching files, astronomical observations, grants and projects, subject files, legal files, speeches, writings, biographical material, awards, printed matter, photographs, and other papers relating to Townes's career beginning in 1948.

Selected Search Terms

The following terms have been used to index the description of this collection in the Library's online catalog. They are grouped by name of person or organization, by subject or location, and by occupation and listed alphabetically therein.

People

Abella, Isaac D., 1934- -- Correspondence.

Basov, N. G. (Nikolaĭ Gennadievich), 1922-2001--Correspondence.

Chiao, Raymond Y .-- Correspondence.

Danchi, William Clifford--Correspondence.

Dicke, Robert H. (Robert Henry)--Correspondence.

Genzel, Reinhard, 1952- -- Correspondence.

Greyber, Howard D., 1923- -- Correspondence.

Javan, Ali, 1926- -- Correspondence.

Letokhov, V. S.--Correspondence.

Ottusch, John J.--Correspondence.

Prokhorov, A. M. (Aleksandr Mikhaĭlovich), 1916- -- Correspondence.

Rydbeck, O. E. H. (Olof Erik Hans), 1911- -- Correspondence.

Schawlow, Arthur L., 1921-1999--Correspondence.

Shimoda, Kōichi--Correspondence.

Shockley, William, 1910-1989--Correspondence.

Townes, Charles H.

Wang, Tien-Chuan--Correspondence.

Wollman, Eric Robert, 1947- -- Correspondence.

Organizations

Committee on Scholarly Communication with the People's Republic of China (U.S.)

Institute for Defense Analyses.

JASON Defense Advisory Group.

National Academy of Sciences (U.S.)

Perkin-Elmer Corporation.

Research Corporation.

United States. Army Research Office.

United States. National Aeronautics and Space Administration.

United States. National Aeronautics and Space Administration. Science and Technology Advisory Committee for Manned

Space Flight.

United States. Office of Naval Research.

University of California, Berkeley.

University of California, Berkeley. Quantum Electronics and Astrophysics Group.

Subjects

Aeronautics.

Astrophysics--Research.

Astrophysics--Study and teaching.

Astrophysics.

Lasers.

Manned space flight--United States.

Masers.

Microwave spectroscopy.

Nobel Prizes.

Physics--Awards.

Physics.

Quantum electronics--Research.

Quantum electronics--Study and teaching.

Quantum electronics.

Religion and science.

Religion--Awards.

Science and state--United States.

Science--International cooperation.

Technology and state--United States.

Templeton Foundation Prize.

Places

United States--Defenses.

United States--Military policy.

Occupations

Astrophysicists.

Educators.

Physicists.

Administrative Information

Provenance

The papers of Charles H. Townes, physicist, astrophysicist, and educator, were given to the Library of Congress by Townes in 1999. Numerous additions were given by him between 2000 and 2009.

Transfers

Audiotapes and videotapes have been transferred to the Library's Motion Picture, Broadcasting, and Recorded Sound Division where they are identified as part of these papers.

Other Repositories

Other papers of Charles H. Townes can be found in the Bancroft Library of the University of California, Berkeley, California.

Copyright Status

Copyright in the unpublished writings of Charles H. Townes in these papers and in other collections of papers in the custody of the Library of Congress has been dedicated to the public.

Access and Restrictions

The papers of Charles H. Townes are open to research. Researchers are advised to contact the Manuscript Reading Room prior to visiting. Many collections are stored off-site and advance notice is needed to retrieve these items for research use.

Security Classified Documents

Government regulations control the use of security classified material in this collection. Manuscript Division staff can furnish information concerning access to and use of classified materials.

Digital Format

Digital files were received as part of the papers of Charles H. Townes. Reference copies were created from the original digital media. Advanced notice is required for access to digital content; consult reference staff in the Manuscript Division for more information.

Preferred Citation

Researchers wishing to cite this collection should include the following information: Container number, Charles H. Townes Papers, Manuscript Division, Library of Congress, Washington, D.C.

Biographical Note

Date Event		
1915, July 28	Born, Greenville, S.C.	
1935	B.A., modern languages, and B.S., physics, Furman University, Greenville, S.C.	
1937	M.A., physics, Duke University, Durham, N.C.	
1937-1939	Assistant in physics, California Institute of Technology, Pasadena, Calif.	
1939	Ph.D., physics, California Institute of Technology, Pasadena, Calif.	
1939-1947	Technical staff, Bell Telephone Laboratories, New Jersey, including design and development of radar bombing and navigation systems for Allied bombers	
1941	Married Frances Hildreth Brown	
1948-1961	Associate professor of physics, Columbia University, New York, N.Y.; appointed professor, 1950; executive director, Columbia Radiation Laboratory, 1950-1952; chairman, Physics Department, 1952-1955; on sabbatical in Europe and Japan, 1955-1956; on leave to the Institute of Defense Analyses, 1959-1961	
1952	Published with Paul Kisliuk, <i>Molecular Microwave Spectra Tables</i> . Washington, D.C.: U.S. Government Printing Office	
1953	Successfully tested first practical maser device	
1955	Published with Arthur L. Schawlow, <i>Microwave Spectroscopy</i> . New York: McGraw-Hill Awarded Guggenheim fellowship	
1955-1956	Guggenheim fellow and Fulbright lecturer, University of Paris, Paris, France, and University of Tokyo, Tokyo, Japan	
1958	Introduced with Arthur L. Schawlow, concept of the optical maser (laser)	
1959	Awarded Patent No. 2,879,439 for production of electromagnetic energy (basic maser patent)	

1959-1961	Vice president and director of research, Institute of Defense Analyses, Washington, D.C.
1959-1969	Consultant, President's Scientific Advisory Committee; member, 1966 1969
1960	Awarded with Arthur L. Schawlow, Patent No. 2,929,922 for maser and maser communication systems (basic laser patent) Editor and contributor, <i>International Quantum Electronics Conference</i> . New York: Columbia University Press
1961-1966	Provost and professor of physics, Massachusetts Institute of Technology, Cambridge, Mass.
1963	Scott lecturer, University of Toronto, Toronto, Canada
1964	Awarded Nobel Prize in Physics with N. G. Basov and A. M. Prokhorov for contributions to fundamental work in quantum electronics leading to the development of the maser and laser
1964-1970	Chairman, Science and Technology Advisory Committee for Manned Space Flight, National Aeronautics and Space Administration
1966-1985	Director, Perkin-Elmer Corp.
1967-2014	Professor of physics, University of California, Berkeley, Calif.; professor emeritus, 1986-2014
1973-1986	Director, General Motors Corp.
1976	Member, President's Advisory Committee on Science and Technology
1995	Published Making Waves. Woodbury, N.Y.: American Institute of Physics
1999	Published <i>How the Laser Happened: Adventures of a Scientist</i> . New York: Oxford University Press
2002-2003	Karl Schwarzschild lecturer in Germany; Birla lecturer and Schroedinger lecturer in India
2002	Awarded Trotter Prize, Texas A&M University, College Station, Tex.
2005	Awarded Templeton Foundation Prize for contributions to the understanding of religion
2015, Jan. 27	Died, Oakland, Calif.

Scope and Content Note

The papers of Charles Hard Townes (1915-2015) span the years 1898-2009, with the bulk of the material dating from 1948 to 2000. The papers are organized into the following series: General Correspondence, Personal File, Alphabetical File, Academic File, Grants and Projects, Patent and Litigation File, Speech and Engagement File, Writings, Photographs and Slides, Classified, Oversize, and Digital Files.

The <u>General Correspondence</u> is comprised mostly of a chronological file of letters spanning the years 1978-2002 and probably maintained as a central file. Crank mail sometimes referred to as "special letters" by Townes dates from 1962 to 1998. Further correspondence resides in the <u>Personal File</u> and the <u>Alphabetical File</u>.

The <u>Personal File</u> contains mostly correspondence, interviews, awards, and biographical information. Correspondence includes letters of advice to students, letters of recommendation, and personal and family letters. Interviews conducted by organizations, including the Laser History Project, chronicle Townes's development of the maser and the laser. An awards file kept by Townes begins with his 1964 receipt of the Nobel Prize, but information for that event is sparse. Other underrepresented or nonexistent years include 1971-1975, 1981-1982, and 1984-2004. A large amount of material covers his win of the Templeton Prize in 2005. A list of awards and honors, bio bibliographies prepared for the University of California, a chronological file, and background forms for publications provides biographical information.

The Alphabetical File contains the largest amount of material and covers Townes's membership in and leadership of various academic, scientific, and governmental organizations. In 1959 Townes began work for the Institute for Defense Analyses in Washington, D.C., a nonprofit agency organized to assist the United States government with technical advice. Growing out of the institute and founded in 1960 was the JASON Defense Advisory Group, a part-time defense think tank for university professors that evaluated national issues involving science and technology. Townes continued with the group through the 1990s. Material for the institute and the JASON Defense Advisory Group includes correspondence, contract agreements, reports, studies, and printed matter. For the National Academy of Sciences, Townes served on the Committee on Scholarly Communications with the People's Republic of China. Documentation for this committee includes meeting minutes, correspondence, reports, and an account by Townes of visits to Chinese astronomical centers in 1977. At the National Aeronautics and Space Administration, Townes served as a consultant to the Science and Technology Advisory Committee for Manned Space Flight in 1964 and later sat on the review panels for the Hubble Space Telescope. Further information on the Hubble Space Telescope is located in files pertaining to the Perkin-Elmer Corporation. Material relating to his work at the National Aeronautics and Space Administration includes meeting minutes, correspondence and memoranda, testimony before Congress, reports, studies, blueprints, and printed matter. Of note are the appointments of Townes through the years to various presidential science and technology committees.

The <u>Alphabetical File</u> also contains a large amount of correspondence. Correspondents include Isaac D. Abella, N. G. Basov, Raymond Y. Chiao, William Clifford Danchi, Robert H. Dicke, Reinhard Genzel, Howard D. Greyber, Ali Javan, V. S. Letokhov, John J. Ottusch, A. M. Prokhorov, O. E. H. Rydbeck, Arthur L. Schawlow, William Shockley, Kōichi Shimoda, Tien Chuan Wang, and Eric Robert Wollman.

The Academic File includes Townes's notebooks and memoranda along with material relating to the physics courses and graduate students he taught over the years. His computation notebooks cover the years 1948-1994, with the notebook dated from July 1, 1957 to May 1, 1965, containing the invention of the optical maser or laser. Townes's memoranda and notes on interferometry written alone and with associates cover the years 1982-1989, his technical memoranda date from 1979 to 1999, and seven volumes of personal notebooks on physics are undated. Teaching physics at American universities and abroad, his courses covered quantum electronics and mechanics, optics, nuclear physics, and astrophysics. He worked closely with graduate students, some of whose computation notebooks, writings and publications, correspondence, and experiments are among the files. Townes also served as the faculty sponsor for the Quantum Electronics and Astrophysics Group, a research unit operating under the University of California at Berkeley that employed postdoctoral fellows and visiting scholars from the United States and abroad to work on grant-funded projects. Agencies that funded projects include the National Aeronautics and Space Administration and the Office of Naval Research. Related grant files are located in Grants and Projects.

The <u>Grants and Projects</u> series is comprised of files on grant-funded projects carried out by Townes, his colleagues, and graduate students at the University of California at Berkeley. Material includes applications, contracts, correspondence, proposals, budgets, and reports. Agencies that funded projects include the Army Research Office, National Aeronautics and Space Administration, Office of Naval Research, and the University of California Committee on Research. The projects include developing equipment for astronomical observations.

The <u>Patent and Litigation File</u> documents legal cases involving maser and laser patents. The largest amount of material concerns Patent Number 2,879,439, on the production of electromagnetic energy. Townes assigned the maser patent to the Research Corporation whose attorney, Harold Stowell, handled their legal matters. Material related to this period includes the original patent and correspondence with Stowell and Stowell Law Offices. By 1970, Dana M. Raymond represented the Research Corporation. His original files, designated with the R34 prefix, contain investigatory material from the case *Gould v. Schawlow* and material from the two patent infringement cases he pursued, *Research Corporation v. Spectra-Physics* and *Research Corporation v. Coherent Radiation*. The correspondence with the Research Corporation also relates to the maser patent and to infringement cases. Raymond's files probably became part of this collection after their use along with those of

Townes for the Laser History Project. In 1966, Gordon Gould challenged Patent Number 2,929,922, the laser patent held by Townes and Arthur L. Schawlow, in the case *Gould v. Schawlow*. Townes and Schawlow prevailed. Of interest is a chronological file on Gould chronicling his decades of patent litigation. Inquiries about the maser and the laser as well as their history are located in Writings.

The <u>Speech and Engagement File</u> covers Townes's career from 1948 to 2008 with some gaps in the latter years. The miscellaneous speeches filed at the end of each year contain Townes's handwritten drafts while many of the printed versions are among the numbered works in <u>Writings</u>. Events attended by Townes are also found in the <u>Alphabetical File</u> usually listed under the name of an organization.

The papers are rounded out by a <u>Writings</u> series comprised mostly of articles, books, and printed speeches, and a <u>Photographs and Slides</u> series. The photographs relate to events attended by Townes and his childhood while the slides are of images used in the classroom or for publications. A <u>Classified</u> file contains correspondence, minutes, and an article related to atmospheric absorption and the Institute of Radio Engineers. <u>Oversize</u> items consist of blueprints, photographs, a broadside, and card file index.

Arrangement of the Papers

This collection is arranged in twelve series:

- General Correspondence, 1962-2002
- Personal File, 1948-2005
- Alphabetical File, 1929-2006
- Academic File, 1946-1999
- Grants and Projects, 1966-1998
- Patent and Litigation File, 1898-1994
- Speech and Engagement File, 1948-2008
- Writings, 1924-2000
- Photographs and Slides, circa 1917-2009
- Classified, 1950-1952
- Oversize, 1971-2008
- Digital Files

Description of Series

Container Series

BOX 1-21 General Correspondence, 1962-2002

Incoming and outgoing correspondence, including attachments, between Townes and family, friends, colleagues, organizations, and the public relating to personal and professional activities.

Arranged in chronological and crank mail files.

BOX 22-38 Personal File, 1948-2005

Correspondence, including letters of advice to students, letters of recommendation, and personal and family letters, biographical information, interviews, awards, appointment calendars, and lists of appointments to organizations and committees.

Arranged alphabetically by topic or type of material.

BOX 39-259 **Alphabetical File, 1929-2006**

Correspondence, memoranda, reports, minutes, consulting contracts, speeches, writings, drafts and notes, photographs, blueprints, printed matter, and financial records.

Arranged in three files and therein alphabetically by name of person, organization, or topic, roughly following the groupings established by Townes. A Columbia University file closely follows Townes's tenure at that institution from 1948 to 1961. Files titled Set A and Set B largely begin with Townes's move to the Massachusetts Institute of Technology in 1961 and continue through his years with the University of California at Berkeley. Overlapping years, organizations, topics, and persons are common among the three, but especially between Set A and Set B. Miscellaneous correspondence is interspersed within each letter of the alphabet under Columbia University and filed at the end of each letter in Set A and Set B.

BOX 260-296 **Academic File, 1946-1999**

Computation notebooks, technical memoranda, notebooks on physics, grade books, course and seminar files, student experiments, published and unpublished writings, drafts and notes, abstracts, correspondence, calculations, diagrams, illustrations, photographs, subject files, grant and project files, budgets, reports, and printed matter.

Arranged alphabetically by topic or type of material.

BOX 297-312 Grants and Projects, 1966-1998

Applications, proposals, contracts, budgets, correspondence, notes, reports, and financial records.

Arranged alphabetically by name of organization and therein by project number.

BOX 313-338 Patent and Litigation File, 1898-1994

Correspondence and memoranda, patent applications and patents, attorney files, briefs, depositions, drafts, exhibits, interrogatories, notes, opinions, pleadings, and printed matter. Arranged into files of legal cases and patents and therein alphabetically by name of person, organization, or case name, or by type of material. Files beginning with the R34 prefix originally belonged to Dana M. Raymond.

BOX 338-355 Speech and Engagement File, 1948-2008

Correspondence, schedules, speeches, drafts, photographs, broadsides, and printed matter.

Arranged chronologically by date of event with miscellaneous speeches filed at the end of each year.

BOX 355-402 Writings, 1924-2000

Correspondence, articles, books, dissertation, thesis, speeches, drafts, page proofs, notes, calculations, contracts, background information, illustrations, photographs, and printed matter.

Arranged into writings by Townes and a miscellaneous file and therein alphabetically by type of material and title of work with the numbered works largely arranged by Townes in chronological order.

BOX 403-408 Photographs and Slides, circa 1917-2009

Photographs, broadsides, photocopies, slides, and indexes. Arranged as received from Townes.

BOX CL 1 Classified, 1950-1952

Correspondence, minutes, and an article.

Arranged and described according to the series, containers, and folders from which the items were removed.

BOX OV 1-OV 3 Oversize, 1971-2008

Blueprints, photographs, a broadside, and an index.

Arranged and described according to the series, containers, and folders from which the items were removed.

BOX DF 1 Digital Files

Unprocessed and unavailable.

Container List

Container	Contents
вох 1-21	General Correspondence, 1962-2002
	Incoming and outgoing correspondence, including attachments, between Townes and family, friends, colleagues, organizations, and the public relating to personal and professional activities.
	Arranged in chronological and crank mail files.
вох 1	Chronological
	1978-1979
	(7 folders) 1980
	(1 folder)
BOX 2	(2 folders)
	1981
	(7 folders)
	1982
	(1 folder)
BOX 3	(4 folders)
	1983
	(4 folders)
	1984
	(1 folder)
BOX 4	(5 folders)
	1985
	(4 folders)
BOX 5	(1 folder)
	1986
	(7 folders)
	1987
	(1 folder)
вох 6	(11 folders)
вох 7	1988
	(11 folders)
BOX 8	(1 folder)
	1989
	(11 folders)
BOX 9	(1 folder)
	1990
	(8 folders)
	1991
	(2 folders)
BOX 10	(4 folders)
	1992
	(7 folders)
BOX 11	(1 folder)

	1993-1994
	(9 folders)
	1995
	(1 folder)
BOX 12	(3 folders)
	1996
	(4 folders)
	1997
	(3 folders)
BOX 13	(1 folder)
	1998
	(7 folders)
	1999
	(2 folders)
BOX 14	(5 folders)
	2000
	(7 folders)
BOX 15	(8 folders)
	2001
	(2 folders)
BOX 16	(11 folders)
BOX 17	2002
	(11 folders)
BOX 18	(2 folders)
	Crank mail
	1962-1973
	(9 folders)
	1974
	(1 folder)
BOX 19	(1 folder)
	1975-1984
	(10 folders)
	1985
	(1 folder)
BOX 20	(1 folder)
	1986-1992
	(9 folders)
BOX 21	1993-1998
	(7 folders)
вох 22-38	Personal File, 1948-2005
	Correspondence, including letters of advice to students, letters of recommendation, and
	personal and family letters, biographical information, interviews, awards, appointment
	calendars, and lists of appointments to organizations and committees.
	Arranged alphabetically by topic or type of material.
вох 22	Appointment calendars, 1996-2005
	(2 folders)
	Appointments

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California University, Berkeley, Calif., 1967-1968
                             Consultant, 1982-1983
BOX 23
                             Massachusetts Institute of Technology, Cambridge, Mass., provost and resignation, 1961,
                           Awards
                             1964-1969
                               (20 folders)
                             1970
                               (1 folder)
BOX 24
                               (3 folders)
                             1971-1978
                               (9 folders)
                             1979
                               (1 folder)
BOX 25
                               (2 folders)
                             1980-1986
                               (7 folders)
BOX 26
                             1992
                             2005
                               (10 folders)
BOX 27
                               (2 folders)
                           Biographical information
                             Awards and honors, 1983-1998
                             Bio-bibliographies for California University, Berkeley, Calif., 1969-1998
                               (2 folders)
                             Chronological file, circa 1954-1998
                               (2 folders)
BOX 28
                               (3 folders)
                             Forms for Who's Who and other publications, 1953-1984
                           Christmas card file, 1985
                           Committee rosters, 1976-1982, undated
                          Correspondence
                             Family, 1959-1983
                               (2 folders)
BOX 29
                               (3 folders)
                             Letters of advice to students, 1965-1983
                             Personal, miscellaneous, 1961-1997, undated
                               (3 folders)
BOX 30
                               (8 folders)
BOX 31
                               (3 folders)
                             Political, 1983
                          Davenport, Homer C., donation of cartoons by, 1980, 1995-1997
                           Doodles, undated
                           Dover Publications, 1974-1975, undated
                          First Light Party, 1987
                          Fragments, circa 1980-1983, undated
                           Genealogy, 1948, undated
                          Gifts to the libraries of California University, Berkeley, Calif., 1974-1980
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Interviews
                            American Institute of Physics, Center for the History of Physics, 1987
                            California University, Berkeley, Calif., oral history, 1993-1994, undated
BOX 32
                            Institute of Electrical and Electronics Engineers, 1992
                               (6 folders)
                            Laser Focus, 1982
                            Laser History Project
                               Chronological file
                                  1983-1984
                                    (2 folders)
BOX 33
                                 1985-1986
                                    (5 folders)
                                 1987
                                    (1 folder)
BOX 34
                                    (2 folders)
                                 circa 1987
                                    (2 folders)
                                  1988-1989
                                    (2 folders)
                               Miscellaneous drafts and notes
                                 1987-1989
BOX 35
                                 Undated
                               Seidel, Robert, 1986, 1994-1995
                            Laser Pioneers Series, 1985
                            Smithsonian Institution, Washington, D.C., Nobel Voices Video History Project, 2001
                             University Explorer, 1969
                          Laser Compact Co., 1993-1994, undated
                          Letters of recommendation, 1949-1983
                             "A-F" miscellaneous
                               (6 folders)
                             "G-M" miscellaneous
BOX 36
                               (10 folders)
BOX 37
                             "N-V" miscellaneous
                               (7 folders)
                             "Wa" miscellaneous
                             "We" miscellaneous
                               (1 folder)
BOX 38
                               (1 folder)
                             "Wh-Wu" miscellaneous
                            "Y-Z" miscellaneous
                          Miscellaneous historical documents, 1950-1951, 1957, undated
                          Personal property, 1960-1961, 1971-1986
                            (2 folders)
                          Requests for biographical information, 1963-1975
                          Requests for reprints, 1969-1977, 1997
                          Requests to evaluate research papers, 1964-1971
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Sixty-fifth birthday celebration, 1980

BOX 39-259 **Alphabetical File, 1929-2006**

Correspondence, memoranda, reports, minutes, consulting contracts, speeches, writings, drafts and notes, photographs, blueprints, printed matter, and financial records.

Arranged in three files and therein alphabetically by name of person, organization, or topic, roughly following the groupings established by Townes. A Columbia University file closely follows Townes's tenure at that institution from 1948 to 1961. Files titled Set A and Set B largely begin with Townes's move to the Massachusetts Institute of Technology in 1961 and continue through his years with the University of California at Berkeley. Overlapping years, organizations, topics, and persons are common among the three, but especially between Set A and Set B. Miscellaneous correspondence is interspersed within each letter of the alphabet under Columbia University and filed at the end of each letter in Set A and Set B.

BOX 39 Columbia University, New York, N.Y.

"Aa-Ab" miscellaneous, 1949-1961

Advanced Research Projects Agency, 1959-1960

Advisor to graduate students, 1952-1954

"Ad-Al" miscellaneous, 1949-1961

(2 folders)

American Institute of Physics

General, 1948-1960, undated

Richtmyer lecture, 1958-1960

American Physical Society, 1950-1959, undated

American Rocket Society, 1949-1954, undated

"Am-As" miscellaneous, 1950-1960

(2 folders)

Atmospheric absorption, 1951-1954 See also Classified

Atomic clock, 1954-1956

Atomic Energy Commission

1948-1952

1953-1957

(2 folders)

Barrett, Alan H., 1955-1958

Basov, N. G., 1955

"Ba" miscellaneous, 1949-1961

Bell Telephone Laboratories

Correspondence, 1948-1961

Printed matter, 1929, 1935-1945

"Be-Bh" miscellaneous, 1949-1961

Bicentennial of Columbia University, New York, N.Y., 1929, 1952 1954, undated

(2 folders)

"Bi" miscellaneous, 1950-1959

Bleaney, Brebis, 1953-1959, undated

"Bl-Bo" miscellaneous, 1950-1959

Brookhaven National Laboratory, Upton, N.Y., 1949-1959

(2 folders)

Charles H. Townes Papers

BOX 40

BOX 41

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"Br" miscellaneous, 1949-1960
                            Burns, Gerald, 1957-1961
                              (1 folder)
BOX 42
                              (1 folder)
                            "Bu" miscellaneous, 1949-1959
                            Carbide and Carbon Chemicals Co., 1948-1955
                            "Ca-Coh" miscellaneous, 1948-1961
                              (5 folders)
                            Columbia Radiation Laboratory, Columbia University, New York, N.Y., 1950-1961
                            "Col" miscellaneous, 1951-1954, undated
                            Committees
                              Committee on Clark F. Ansley Award, 1954
                              Committee on Endowed Professorships, 1953-1954
                              Committee on Graduate Work, 1954-1955, undated
                              Committee on Industrial Research
                                 1953
                                1954
BOX 43
                              Committee on Instruction, School of Engineering, 1953-1954
                              Committee on Physics in Engineering Education, 1954
                              Committee on Pupin Fund, 1953, undated
                              General, 1950-1961
                            "Com" miscellaneous, 1952-1959, undated
                            Contracts for positions
                              Negotiations, 1948-1953, undated
                              Proposals, 1936, 1950-1951, 1958, undated
                                (2 folders)
                            "Con-Cu" miscellaneous, 1950-1960
                            "Da-Di" miscellaneous, 1948-1961
                              (3 folders)
                            Dousmanis, George C., 1955-1960
BOX 44
                            "Do-Dy" miscellaneous, 1949-1961
                              (2 folders)
                            "Ea-Ep" miscellaneous, 1947-1961
                              (3 folders)
                            Equipment for Cento, Italy, 1953, undated
                            "Er-Ev" miscellaneous, 1950-1959
                            Executive officers of the faculty of pure science, 1953-1955, undated
                            "Ez" miscellaneous, 1954
                            Faraday Society, London, England, 1954-1955, undated
                            "Fa-Fo" miscellaneous, 1949-1960
                              (5 folders)
                            Franklin Institute, Philadelphia, Pa., 1958-1960
                            "Fr-Fu" miscellaneous, 1949-1960
                            Fulbright fellowship, 1955-1958
                            "Ga" miscellaneous, 1951-1960
                            "Ge-Gl" miscellaneous, 1950-1961
BOX 45
                              (2 folders)
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	Gordy, Walter, 1947-1960
	•
	"Go-Gu" miscellaneous, 1949-1961
	(3 folders)
	"H" miscellaneous, 1947-1961
	(5 folders)
BOX 46	International Business Machines, computing course, 1956
	Institute for Defense Analyses, Washington, D.C.
	Correspondence, 1959-1961
	Printed matter, 1959
	Institute of Radio Engineers, 1950-1959 See also Classified
	"I" miscellaneous, 1950-1961
	Javan, Ali, 1954-1960, undated
	"Ja-Jos" miscellaneous, 1945-1961
	(3 folders)
BOX 47	"Jou" miscellaneous, 1948-1961
	"K" miscellaneous, 1947-1961
	(6 folders)
	"L" miscellaneous, 1948-1960
	(5 folders)
	Mandy, Christopher, 1954, undated
BOX 48	"Ma" miscellaneous, 1950-1960
BOX 40	McGraw-Hill Book Co., 1955-1967
	"Mc-Me" miscellaneous, 1948-1959
	(2 folders)
	Miscellaneous university and personal correspondence, 1949-1960
	"Mi-My" miscellaneous, 1948-1961
	(3 folders)
	National Academy of Sciences
T 0 T 10	General, 1954-1959
BOX 49	National Research Council, 1951-1961
	National Bureau of Standards, 1948-1960
	(2 folders)
	National Science Foundation, 1952-1959
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                                   Dec., Samuel D. Gasster and Eric Gustafson
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                            Ruby masers, 1958, 1966, undated
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                            Wannier, Peter Gregory, Isotope Abundances in Interstellar Molecule Clouds, dissertation,
                              1974
                            Waveguides and resonators, 1962-1970, undated
                            Yngvesson, K. Sigfrid, "Maser Amplifiers," undated
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	Bostick, Winston Harper, and Alan Berman, 1963
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	Goldmuntz, Lawrence A., Gordon Gould, Gould family members, Robert R. Keegan, and Maurice Charles Neustein, 1963
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BOX DF 1 Unprocessed and unavailable